



Dkt. No. 67493/121

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No. : 10/803,847

Confirmation No: 6418

Applicant : Guangming Xiao

Filed : March 18, 2004

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Examiner : Rosasco, Stephen D.

Docket No. : 67493/121

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Name:	Vivian Campbell
Signature:	<i>Alvin Karna for Vivian Campbell</i>

**REQUEST FOR RECONSIDERATION IN RESPONSE TO OFFICE ACTION DATED
DECEMBER 20, 2006**

MAIL STOP AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22323-1450

Sir:

In response to the Office Action mailed December 20, 2006, the period for reply being extended by the attached Petition for Extension of Time, and further to the telephone interview conducted on April 18, 2007 by Applicant's representative with Examiner Rosasco, reconsideration of the above-identified application is respectfully requested.

Claims 1-28 are pending. Claims 9-15 have previously been withdrawn from consideration.

Applicant appreciates the courtesies extended to Applicant's representative during the April 18, 2007 interview.

The Office Action rejects claims 1, 4-8, 16-18 and 24-28 under 35 U.S.C. 102(e) over Babcock et al. (U.S. Patent No. 6,902,851) or Cummings (U.S. Patent No. 7,022,436); and claims 2, 3 and 19-23 under 35 U.S.C. 103(a) over Babcock or Cummings, in view of Xiao (U.S. Patent No. 6,472,766). These rejections are respectfully traversed.

Neither Babcock nor Cummings disclose or even suggest an EAPSM including, inter alia, an embedded phase shift layer of phase shifting and attenuating material, as recited in claim 1, and as similarly recited in claims 4, 16, 19, 24 and 28.

Babcock discloses a phase shifting mask including a transparent substrate 34 having etched portions 50, 52, and an opaque layer 54 formed over the transparent substrate 34. See FIG. 3 and column 3, line 53 - column 4, line 7 of Babcock. The portions 50, 52 are etched to different depths to obtain the desired level of phase shift, but the mask of Babcock does not allow for independent adjustment of attenuation. In particular, Babcock does not teach the use of an embedded phase shift layer disposed between the opaque layer 54 and the transparent substrate 34, where adjustment in thickness of the embedded layer provides for adjustment in attenuation. In general, Babcock emphasizes the use of a dual wavelength in the exposure of the mask, and purpose of the dual trench is to maintain a 180 degree phase shift at two exposure wavelengths.

FIG. 12 of the Cummings patent discloses an alternating phase shift mask 500 includes a transparent substrate 510, and a hard mask 520 disposed over the substrate 510 having etched features 531, 532 that extend to a depth into the substrate. The

features 531, 532 are filled with a fill material 550, which may be an attenuating material. However, the depth of the etched features is adjusted merely to alter the phase shift characteristics of the mask, and not to adjust the attenuation. See column 10, lines 35-52 of Cummings. As in the Babcock patent, the Cummings patent does not teach the use of an embedded phase shift layer disposed between an opaque layer and the substrate.

Xiao does not make up for the deficiencies of Babcock and Cummings. Thus, even combining Xiao with Babcock or Cummings would not result in the claimed invention.

For at least these reasons, it is respectfully submitted that claims 1, 4, 16, 19, 24 and 28 are in condition for allowance. The dependent claims are also in condition for allowance for the reasons discussed as well as for the additional features they recite.

In light of the foregoing remarks, Applicants respectfully request that a timely Notice of Allowance with respect to all of the pending claims be issued in this case. Authorization is given hereby to charge any deficiency or credit any overpayments to Deposit Account No. 01-1785. A copy of this document is enclosed.

Respectfully submitted,

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